CLAIMS

1. Method for filling a bearing gap of a hydrodynamic bearing with a lubricant, comprising the steps of:

producing drops of lubricant in a defined manner; and

applying the drops of lubricant to a defined region of the bearing to be filled.

2. Method according to Claim 1, wherein drops of lubricant are applied in a controlled manner to at least one of a bearing gap region between a shaft and a shaft mount and a region which is in fluidic connection with the bearing gap.

3. Method according to Claim 1, wherein said production of drops of lubricant is performed away from the region to which they are applied.

4. Method according to Claim 1, wherein said drops of lubricant are produced from a lubricant drop generator and are directed into the region to which they are to be applied.

5. Method according to Claim 1, wherein said defined region to which lubricant is applied is not in fluidic contact with a lubricant source.

6. Method according to Claim 5, wherein there is no reflux connection from the defined region to said lubricant source.

7. Method according to Claim 1, wherein the bearing gap to be filled is closed on one side.

8. Method according to Claim 1, wherein the production of drops of lubricant is controlled with respect to the drop size.

9. Method according to Claim 8, wherein an average diameter of said drops lies in the range between 50 μm and 150 μm.

10. Method according to Claim 8, wherein an average diameter of said drops lies in the range between 75 μm and 95 μm

11. Method according to Claim 1, wherein drops of lubricant with a defined drop volume are produced.

12. Method according to Claim 1, wherein the region to which the drops of lubricant are applied is spatially predetermined.

13. Method according to Claim 1, wherein a closed film of lubricant forms around the shaft, covering the bearing gap on the outside.

14. Method according to Claim 1, wherein the production of drops of lubricant is controlled with respect to the drop speed.

15. Method according to Claim 1, wherein the production of drops of lubricant is controlled with respect to the drop production rate.

16. Method according to Claim 1, further comprising the step of counting the drops of lubricant.

17. Method according to Claim 16, wherein the number of drops of lubricant produced by a lubricant drop generator is determined during the production of drops.

18. Method according to Claim 16, wherein the degree of filling of the bearing gap is determined based on counting the drops of lubricant.

19. Method according to Claim 16, wherein said step of counting said drops is performed by optically counting the drops of lubricant.

20. Method according to Claim 16, wherein the number of drops of lubricant is counted when they reach the defined region of the bearing.

21. Method according to Claim 16, wherein the number of drops of lubricant is counted when they fly through a measuring path.

22. Method according to Claim 21, wherein the measuring path is positioned transversely with respect to a direction in which the drops of lubricant fly.

23. Method according to Claim 21, wherein the measuring path is defined by means of a transmitter-receiver system.

24. Method according to Claim 16, wherein the step of production of drops of lubricant and the step of counting the drops of lubricant are correlated with each other.

25. Method according to Claim 24, wherein a lubricant drop generator and a device for counting drops of lubricant are coupled to each other.

26. Method according to Claim 1, wherein the defined region of the bearing to which lubricant is to be applied is automatically determined.

27. Method according to Claim 26, wherein the defined region to which lubricant is to be applied is determined by optical means.

28. Method according to Claim 26, wherein the defined region to which lubricant is to be applied is determined by means of image processing.

29. Method according to Claim 1, wherein a lubricant drop generator and the defined region of the bearing to which lubricant is to be applied are automatically positioned such that they are aligned with respect to each other.

30. Method according to Claim 1, wherein the step of applying said drops is performed in an operating chamber under vacuum conditions.

31. Method according to Claim 30, wherein the pressure in the operating chamber lies below 1 mbar at least for a predetermined period of time.

32. Method according to Claim 30, wherein air is admitted to the operating chamber after the application of drops to the bearing is completed.

33. Method according to Claim 1, wherein an amount of lubricant is applied in a way corresponding to a filling level of the bearing gap.

34. An apparatus for introducing lubricant into the bearing gap between a shaft and a shaft mount of a hydrodynamic bearing, comprising:

a lubricant drop generator directing drops of lubricant in a defined manner into at least one of a bearing gap region and a region in fluidic connection with the bearing gap.

35. Apparatus according to Claim 34, further comprising a counting device configured to count the drops of lubricant.

36. Apparatus according to Claim 34, wherein drops of lubricant of a defined volume are generated by the lubricant drop generator.

37. Apparatus according to Claim 34, further comprising an emission device configured to emit the drops of lubricant.

38. Apparatus according to Claim 37, wherein the emission device comprises a nozzle.

39. Apparatus according to Claim 37, wherein the emission device and the bearing to be filled can be automatically positioned with respect to each other.

40. Apparatus according to Claim 34, further comprising a camera configured to detect the region of the bearing to which lubricant is to be applied.

41. Apparatus according to Claim 35, wherein the counting device is configured to determine a number of drops of lubricant being emitted.

42. Apparatus according to Claim 41, wherein the counting device is coupled to the lubricant drop generator.

43. Apparatus according to Claim 35, wherein the counting device is configured to determine the number of drops of lubricant reaching the defined region of the bearing to which lubricant is to be applied.

44. Apparatus according to Claim 34, further comprising a light barrier device configured to determine the number of drops of lubricant flying through a measuring line.

45. Apparatus according to Claim 44, wherein the production of drops by the lubricant drop generator is correlated to the determination of the number of drops by the light barrier device.

46. Apparatus according to Claim 34, further comprising an operating chamber accommodating the bearing.

47. Apparatus according to Claim 46, wherein said operating chamber is under a vacuum condition for at least a predetermined period of time.

48. Apparatus according to Claim 34, wherein the lubricant drop generator is distanced from the bearing.

49. Apparatus according to Claim 34, wherein the lubricant drop generator further comprises a metering head having a piezo actuator.

50. Apparatus according to Claim 35, wherein said counting device further comprises a camera.

51. Apparatus according to Claim 34, further comprising a control device controlling the production of drops of lubricant and the application of drops of lubricant to the bearing.

52. Apparatus according to Claim 51, wherein said control device controls admission of air to an operating chamber.

53. Apparatus according to Claim 34, further comprising a lubricant source disposed in a vacuumed spatial region.